

A SYNOPSIS OF MARICOPODYNERUS (HYMENOPTERA: VESPIDAE).

By RICHARD M. BOHART, Davis, California.

In 1908 Henry Viereck proposed the subgenus *Maricopodynerus* for a new species of *Odynerus* from Oak Creek Canyon, Arizona. This species was remarkable for its greatly enlarged, bell-like second tergite which covered the third and following abdominal segments. The same species from Jerome, Arizona was described later in the same year under another name by Peter Cameron. When the old genus *Odynerus* was divided, *Maricopodynerus* was raised to a genus containing only the type species, *maricoporum*. Two additional species were recently described by the author¹ from Lower California and a study of additional material reveals 6 more new ones described below from various sections of western North America. All of these have the following generic characters which taken together distinguish them from related genera: Second tergite bell-shaped so that its median length is more than twice that of the second sternite; second tergite with a membranous apical margin; first sternite much broader than its median length; second sternite flat.

The genus is rare in collections as attested by the fact that less than 150 specimens have been noted in the principal collections of the country. Those from which material was borrowed for study are the California Academy of Sciences, U. S. National Museum, Museum of Comparative Zoology at Harvard, University of California, Oregon State College and Washington State College. Individuals who have contributed specimens are E. G. Linsley, H. and M. Townes, E. Gehrhardt, N. W. Frazier, C. D. Michener, M. Cazier and P. H. Baldwin.

Considering the pronounced structural peculiarities of the genus, distinctions between species are disappointingly few. Except for *sericifrons* the male genitalia and antennae are fairly similar. Punctuation differences are obvious, but subject to some variation even in a single locality. The mandible shape is remarkable for *permandibularis* but apparently uniform for the other species. The most useful structural feature in the genus as a whole is the shape of the clypeus, and the degree of emargination of its apex is fairly

¹ Bohart, R. M. 1948. Contributions toward a knowledge of the insect fauna of Lower California, no. 9, Hymenoptera: Eumeninae. Proc. Calif. Acad. Sci. (4th ser.) 24: 313-336.

constant within a species as well as similar in the 2 sexes. The shading of the wing membrane appears to be of group significance in *Maricopodynerus*, although this character is not always reliable in other genera of Vespidae.

KEY TO THE SPECIES OF MARICOPODYNERUS

1. Membrane of apical wing cell clear or uniform in color 2
 Membrane of apical wing cell stained toward apex 5
2. Wing membrane water clear and with sparse microsetae (about 50 in apical cell); membrane at apex of tergite II not extending around sides; male clypeus with dense silvery hair which obscures puncturation; male last antennal segment shaped like a parrot bill and higher than broad.
sericifrons R. Bohart
 Wing membrane at least slightly tinted, microsetae abundant (many hundreds in apical cell); membrane at apex of tergite II continued at least a short distance around sides; male clypeus not densely haired; male last antennal segment flattened dorsoventrally 3
3. No interantennal carina; body markings extensively brownish-red *chisosensis* R. Bohart
 A sharp interantennal carina leading from clypeus 4
4. Clypeus shallowly emarginate, all black in female, black-rimmed in male *rudiceps* R. Bohart
 Clypeus with some red and white markings in female, male clypeus with apex reddish or pale.
maricoporum (Viereck)
5. Pale margin of tergite II restricted to apex, leaving lateral spot isolated; male clypeus black-rimmed and with sharply incised apex *decorabilis* R. Bohart
 Pale margin at apex of tergite II extending anteriorly along sides and approaching or joining lateral spot 6
6. Mandible thickened and bluntly curved toward apex; subapical depression at middle of tergite II faintly but distinctly punctured, rest of tergite impunctured along mid line; female only known *permandibularis* R. Bohart
 Mandible slender toward apex 7
7. Subapical depression at middle of tergite II appearing impunctured at ordinary magnifications, first 2 tergites almost impunctured *pulvipilus* R. Bohart
 Subapical depression at middle of tergite II distinctly punctured 8

8. Abdominal puncturation greatly reduced; male clypeus with moderately incised reddish apex *lissus* R. Bohart
Abdominal puncturation moderate; male clypeus with a very shallow, brownish incision, almost truncate.
shannoni R. Bohart

Genus *Maricopodynerus* Viereck

Odynerus (*Maricopodynerus*) Viereck, 1908. Trans. Amer. Ent. Soc. 33: 397, type: *O. maricoporum* Viereck.

Maricopodynerus maricoporum (Viereck)

Odynerus maricoporum Viereck, 1908. Trans. Amer. Ent. Soc. 33: 397, male, type locality: Oak Creek Canyon, Arizona.
Distribution.—Arizona, California, Nevada, Colorado.

Maricopodynerus pulvipilus R. Bohart

Maricopodynerus pulvipilus R. Bohart, 1948. Proc. Calif. Acad. Sci. (fourth series) 24: 321, male, female, type locality: Tortuga Island, Gulf of California.
Distribution.—Lower California.

Maricopodynerus permandibularis R. Bohart

Maricopodynerus permandibularis R. Bohart, 1948. Proc. Calif. Acad. Sci. (fourth series) 24: 321, female, type locality: Tiburon Island, Gulf of California.
Distribution.—Known only from type locality.

***Maricopodynerus sericifrons* n. sp.**

Male.—Black with red and ivory markings. Red are: mandible mostly, flagellum, sutures on dorsum of thorax, spot on tegula, propodeum mostly on side and in concavity, legs largely, tergite I basally, II laterobasally and on apical membrane, III and following, sternite I entirely, II and following mostly. Ivory are: clypeus, 2 interantennal spots, ocular emargination dot, scape in front, dot on mandible base, front half of pronotum above, tegular spot, mesopleural spot, 2 large spots on scutellum and small ones on post-scutellum, tibial spots, emarginate bands on tergites I and II. Wing membrane mostly water clear, microsetae sparse, about 50 in apical cell. Clypeus and frons with dense silvery hair, rest of body with similar but less conspicuous pubescence. Puncturation moderate, punctures of pronotum well separated. Last 2 antennal segments relatively stout, last one parrot bill like and higher than broad; clypeus about 1.5 times as broad as long, with a rounded apical emargination; interantennal arca not ridged; humeral angle sharp; mid femur swollen at apical one-third as seen from above

and excavated below; tergite II longer than broad, with membrane restricted to apical margin, not extending as far as apex of sternite II. Aedeagus very broad at apex and with a deep, membrane-filled emargination, hardly constricted subapically and broader there than subbasally; paramere slender and with styliform apex obtusely bent inward. Length to apex of second tergite 7.0 mm.

Female.—Characters about as in male but clypeus red with black above, front tibia red, pubescence of head less dense, clypeus with distinct but well-separated punctures, mid femur with swelling less pronounced. Length to apex of second tergite 8.0 mm.

Holotype, male, Calif. Acad. Sci. Ent. no. 6136, 2 mi. W. Edom, Riverside Co., Calif., Mar. 8, 1936 (E. G. Linsley). Paratypes, 7 males and 12 females from the following localities in southern California: Edom (E. G. Linsley), Colorado Desert (H. S. Gentry), La Quinta and Needles (P. H. Timberlake), Palm Springs and Indio (P. H. Timberlake), Mecca and Painted Canyon (P. H. Timberlake). Collecting dates were in March, April, May, June and October.

This species is perhaps the most distinct of the genus by virtue of its clear wings, silvery pubescence and peculiar male antennae and aedeagus.

Maricopodynerus chisosensis n. sp.

Male.—Black with brownish red and ivory markings. Brownish red are: antenna and mandible mostly, hind margin of pronotum, tegula partly, wing veins basally, propodeum and legs mostly, tergite I except narrowly at apex, tergite II at base and narrowly around pale marks, a pair of spots at apex of II, venter mostly. Ivory are: scape in front, tiny spot at base of mandible, clypeus, interantennal and ocular spots, postocular spot, rather narrow humeral margin, mesopleural and tegular spots, 2 spots on scutellum, stripe across postscutellum, spots near apex of front and mid femora, tibial lines, wavy apical margins of first 2 tergites, that of II connecting with a large subbasal lateral spot. Wing membrane faintly tinted, microsetae abundant. Body with inconspicuous fine silvery pubescence, some upright pale hair on front and vertex. Punctuation moderately close, punctures of pronotum mostly separated by less than a puncture diameter. Last 2 antennal segments small and slender. Clypeus about 1.3 times as broad as long, with a broadly v-shaped apical emargination; interantennal area rounded off, not ridged; humeral angle slightly obtuse, shoulders broad; mid femur slightly swollen toward apical one-

third as seen from above; tergite II a little longer than broad, with membrane extending back along side almost to middle of sternite II. Aedeagus (when flattened) with subapical constriction about one-half as broad as subbasal one; paramere broadly rounded at apex and with a small subapical inner notch. Length to apex of second tergite 7.0 mm.

Female.—Characters about as in male but no yellow spots on scape, mandible or femora; clypeus red with basolateral spots, angular apical emargination slightly obtuse, punctures coarse and close. Length to apex of second tergite about 9.0 mm.

Holotype, male, U. S. National Museum, Chisos Mts., Brewster Co., Texas, June 10–12, 1908 (Mitchell and Cushman). Paratypes, 8 females, same data as type.

This species is related to *maricoporum* but is somewhat more robust. Also the difference in the interantennal area is striking.

Maricopodynerus rudiceps n. sp.

Male.—Black, marked with red and whitish. Red are: mandible at apex, labrum, flagellum beneath, spot at side of propodeum, legs mostly, basal half of tergite I. Third and following abdominal segments reddish brown. Whitish are: clypeus except for black edging all around, small spot on flagellum, ocular and postocular spots, narrow humeral margin, 2 spots on tegula, mesopleural spot, 2 spots on scutellum, narrow stripe across postscutellum, minute spots on mid and hind tibiae, apical margins of tergites I and II, that on II undulate and joining lateral spot, posterolateral spot on sternite II. Wing membrane slightly yellow stained, microsetae abundant. Pubescence pale and inconspicuous. Puncturation moderately dense, punctures of pronotum nearly contiguous. Last 2 antennal segments slender, reaching nearly to middle of X; clypeus about 1.3 times as broad as long, apical emargination angular but very shallow, apex about as broad as 2.5 ocellus diameters; interantennal ridge sharp; humeral angle obtuse; mid femur slightly irregular but not noticeably swollen at apical one-third; tergite II a little longer than broad, with membrane extending back about to middle of sternite II. Aedeagus with subapical constriction about one-half as broad as subbasal one, paramere very broad toward apex, pointed but not notched or recurved. Length to apex of second tergite 6.5 mm.

Female.—Characters about as in male but with clypeus all black and antenna usually so. Humeral margin stripe sometimes broken. Abdominal sternites usually brown except for first one. Clypeus

with coarse, striatiform punctures, apical emargination a shallow v, apex about as broad as 2 ocellus diameters. Length to apex of second tergite about 9.0 mm.

Holotype, male, Calif. Acad. Sci. Ent. no. 6137, Verdi, Nevada, May 31, 1931 (L. S. Slevin). Paratypes, 8 males and 16 females from the following localities: Nevada: Mt. Montgomery (R. Bohart), Verdi (L. S. Slevin); California: Davis Cr. and Lassen Cr., Modoc Co. (C. L. Fox), Mammoth, Mono Co. (R. and G. Bohart); Arizona: Flagstaff (F. C. Pratt); Idaho: Craters of the Moon (R. Bohart), Lewiston (C. L. Fox); Colorado: Rifle (S. A. Rohwer); Montana: Helena; Oregon: Hereford, Baker, and 47 mi. E. Burns (H. A. Scullen), Abert Lake (Gray and Schuh); Washington: Asotin (I. McCracken); Utah: Hansel.

The reddish coloration varies considerably in extent in the paratypes, some specimens being a little more red than the type, others with very little red. Essential characters are the broad and shallowly incised clypeus of both sexes combined with the dense puncturation over much of the body, and the clear apical wing cell.

Maricopodynerus decorabilis n. sp.

Male.—Black with whitish and a few reddish markings. White are: clypeus except for dark rim all around, scape in front, ocular and postocular spots, humeral margin, 2 spots on tegula, mesopleural spot, 2 spots on scutellum, broken line across postscutellum, apical margins of tergites I and II, that of II not attached to a lateral spot, dot at side of apex of sternite II. Red are: mandible apex, flagellum beneath, tegula largely, tarsi partly. Wing membrane slightly stained, apical one-third of apical cell brownish, microsetae abundant. Pubescence pale fulvous, inconspicuous, some upright hair on front. Puncturation moderate and close on head and thorax, fine but evenly dispersed and well separated on abdominal tergites I and II. Last 2 antennal segments small, reaching to basal one-fourth of segment XI. Clypeus slightly broader than long, apex about as broad as 2 ocellus diameters, emargination rounded, about twice as wide as deep; interantennal area distinctly carinate; humeral angle slightly obtuse; mid femur only slightly irregular in top view; tergite II with membrane extending about to apex of sternite II, white-marked areas scarcely swollen, tergite about as broad as long in dorsal view. Aedeagus with subapical constriction about three-fifths as broad as subbasally where it is hardly constricted; paramere with a stout, peglike apex delimited by a sharp subapical bend on inner margin. Length to apex of second tergite 7.0 mm.

Female.—Characters about as in male. Clypeus black or with lateral white spots, scape black except for a little reddish at base, humeral margin broken into 3 or 4 spots, legs and first abdominal segment extensively reddish, no spots on sternite II. Clypeus with rather coarse, striatiform punctures. Length to apex of second tergite 9.0 mm.

Holotype, male, Calif. Acad. Sci. Ent. no. 6138, Leavitt Meadows, Mono Co., Calif., June 25, 1937 (E. Gehrhardt). Paratypes, 3 males and 3 females from the following localities: Klamath Falls, Oregon (C. L. Fox); Blitzen Valley, Harney Co., Oregon (S. G. Jewett); Merrill, Oregon (C. C. Wilson); "Nevada". I have also seen an imperfect female specimen from Keeler, Inyo Co., California (N. W. Frazier).

As in most members of the genus, markings are variable. Some males have the first tergite and legs mostly red. In general, however, the coloration is darker than usual in the genus. The shape, color pattern, and relatively fine puncturation of the second tergite are diagnostic.

Maricopodynerus lissus n. sp.

Male.—Black with whitish and red markings. White are: clypeus, scape in front, ocular and postocular dots, humeral margin, mesopleural and scutellar spots, line across postscutellum, 2 spots on tegula, spot on front femur, lines on tibiae, sinuate apical margins of first 2 tergites. Reddish are: mandible mostly, emargination of clypeus, flagellum beneath, labrum, hind pronotal margin, tegula mostly, wing veins basally, propodeum partly, legs mostly, first abdominal tergite partly. Forewing brown-stained, especially along front margin, microsetae abundant. Pubescence minute, silvery, that of clypeus forming 2 spots in some lights, some upright hair on front. Puncturation moderate on head and thorax, punctures mostly separated by less than a puncture diameter. Puncturation of abdomen fine on tergite I, coarse at sides and apex of II, practically absent over base and middle of II. Last 2 antennal segments moderately small, reaching to base of segment XI. Clypeus a little broader than long, apex about as broad as 1.5 ocellus diameters, emargination narrowly rounded, about twice as wide as deep; interantennal area with a distinct carina; humeral angle somewhat obtuse; mid femur only slightly irregular in top view; tergite II distinctly longer than broad, with membrane extending toward middle of sternite II. Aedeagus with subapical constriction about three-fifths as broad as subbasal one; paramere slender

toward apex, gently curved, fingerlike, bluntly rounded at tip. Length to apex of second tergite 8.0 mm.

Female.—Characters about as in male. Clypeus red at apex, black basally and whitish laterally or across middle; scape red in front; femora red, darker basally. Clypeal punctures coarse but only slightly striatiform. Length to apex of second tergite 9.0 mm.

Holotype, male, Calif. Acad. Sci. Ent. no. 6139, Maricopa Mts., Arizona, April 14, 1947 (H. and M. Townes). Paratypes, 11 males, same data as type, 3 females, San Xavier Mission, Arizona, October 15, 1936 (E. P. Van Duzee); 1 female, Parker Dam, California, Nov. 23, 1936 (P. H. Timberlake).

The almost smooth base and middle area of the second tergite is a striking character approaching *pulvipilus*, of which it may represent a subspecies. The shape of the clypeus and other body features including male genitalia are almost exactly as in *pulvipilus*. Some males have the second tergite more extensively punctured, so this character is not wholly reliable. The moderate, almost v-shaped, reddish-tinted clypeal emargination of both sexes and the brown-stained wing margin appear to be consistent.

Maricopodynerus shannoni n. sp.

Male.—Black, marked with ivory and some reddish. Ivory are: clypeus mostly, basal mandible spot, scape in front, ocular and post-ocular dots, humeral margin, mesopleural and scutellar spots, 2 spots on tegula, transverse spot on postscutellum, dot on front femur, tibial streaks, wavy hind margins of tergites I and II, that on II connected with a mediolateral spot. Reddish are: flagellum beneath, narrow apical and apicolateral clypeal margin (reddish-brown), mandible mostly, labrum, stains along hind pronotal margin and other thoracic sutures, propodeum near juncture of abdomen, tegula largely, legs partly, stains on sternites and subapically on tergite I. Wing veins reddish basally, brownish apically, membrane clouded slightly along fore margin of forewing, apical cell brownish over its apical one-third. Pubescence minute, pale, inconspicuous; silvery at sides of clypeus and lower part of frons. Puncturation moderate, punctures of clypeus well separated, those of pronotum almost contiguous, those of tergites I and II finer and separated by more than a puncture diameter. Clypeus about 1.5 times as broad as long, apex barely concave, about 1.8 ocellus diameters wide, central area of clypeus bulging; last 2 antennal segments small, reaching about to base of XI; interantennal area with a tubercle and weak carina; humeral angle obtuse; mid femur

almost regular as seen from above; tergite II distinctly longer than broad, apical membrane extending nearly to base of sternite II. Aedeagus with subapical constriction about three-fifths as broad as subbasal one; paramere fairly stout toward apex, bluntly rounded, weakly angled subapically on inner margin. Length to apex of second tergite 6.5 mm.

Holotype, male, Calif. Acad. Sci. Ent. no. 6140, Stratford, Washington, July 4, 1920 (R. C. Shannon). Paratype, 1 male, Lake Paha, Washington, July 20, 1920 (R. C. Shannon). I have also seen a pair from Mono Co., California and a female from Nebraska which may be of this species. They have the nearly truncate clypeus and wing markings. Slight differences in puncturation make this somewhat doubtful and association of the sexes will have to wait until a series is collected at one locality. The clypeus and wing characters separate it from other known species.

Back Issues of the Society's Publications. During the past year the Society's stock of past issues of the **Bulletin** and **Entomologica Americana** has been rearranged so as to facilitate the prompt handling of orders. All orders for all publications **MUST** be sent **DIRECT** to Brooklyn Entomological Society, R. R. McElvare, Treasurer, 26 Bogart Avenue, Port Washington, New York.